

What is claimed is:

1. A pattern retrieving method for use with a pattern retrieval apparatus connected to a plurality of terminal devices through a network, comprising:

receiving a retrieval condition, transmitted from each of the plurality of terminal devices together with terminal device information for designation of each of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of data to be searched;

storing the received retrieval condition and the terminal device information in a retrieval condition buffer;

determining whether or not a preceding retrieving process is being performed;

when it is determined that the preceding retrieving process is not being performed, generating a retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other if there are two or more identical retrieval patterns in the retrieval patterns stored in the retrieval condition buffer,

generating a retrieval request expression variable table in which the retrieval request expression indicating the retrieval pattern using the first variable and a second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information stored in the retrieval condition buffer unit, and the generated retrieval pattern variable table;

transmitting the extracted retrieval result to each of the plurality of terminal devices.

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a retrieval condition reception unit receiving

a retrieval condition, transmitted from each of the plurality of terminal devices together with the terminal device information for designation of each of the terminal devices, including a retrieval  
5 pattern and a retrieval expression for retrieval of the data to be searched;

a retrieval condition buffer unit storing the retrieval condition and the terminal device information received by said retrieval condition  
10 reception unit;

a retrieving process determination unit determining whether or not a preceding retrieving process is being performed;

a retrieval pattern variable table generation  
15 unit generating, when the retrieving process determination unit determines that the preceding retrieving process is not being performed, a retrieval pattern variable table in which a retrieval pattern and a first variable having the  
20 retrieval pattern as a value are associated with each other, if there are two or more identical retrieval patterns in the retrieval patterns stored in said retrieval condition buffer units, excluding the retrieval patterns other than one retrieval  
25 pattern;

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a retrieval request expression variable table generation unit generating a retrieval request expression variable table in which the retrieval request expression indicating the retrieval pattern using the first variable and the second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information stored in said retrieval condition buffer unit, and the retrieval pattern variable table generated by said retrieval pattern variable table generation unit;

a retrieval unit extracting a retrieval result matching the retrieval condition transmitted from each of the plurality of terminal devices by searching said retrieval target data storage unit according to the retrieval request expression variable table generated by said retrieval request expression variable table generation unit; and

a transmission unit transmitting the retrieval result extracted by said retrieval unit to each of

the plurality of terminal devices.

7. The apparatus according to claim 6, wherein  
said retrieval condition buffer unit stores  
5 the retrieval condition until said retrieving  
process determination unit determines that a  
retrieving process is completed.
8. The apparatus according to claim 6, wherein  
10 said retrieval condition buffer stores the  
retrieval condition until a predetermined time is  
reached or a predetermined capacity is filled.
9. The apparatus according to claim 6, wherein  
15 said retrieval unit simultaneously retrieves a  
plurality of retrieval patterns.
10. The apparatus according to claim 6, wherein  
said retrieval unit is one of an Aho-Corasick  
20 (AC) method, an Expanded-Boyer-Moore (EBM) method,  
and a Shinohara-Arikawa (SA) method.
11. A computer-readable storage medium storing a  
program code of a pattern retrieval program  
25 executed by a pattern retrieval apparatus connected

receiving a retrieval condition, transmitted from each of the plurality of terminal devices together with terminal device information for designation of each of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of data to be searched;

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        determining whether or not a preceding
retrieving process is being performed;

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                generating a retrieval request expression
25 variable table in which the retrieval request

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extracting a retrieval result matching the  
retrieval condition transmitted from each of the  
15 plurality of terminal devices by searching the  
retrieval target database storing the data to be  
searched according to the generated retrieval  
request expression variable table; and

12. The storage medium according to claim 11,  
wherein

25       said retrieval condition buffer stores the  
retrieval condition until it is determined that a



retrieving process is completed.

13. The storage medium according to claim 11,  
wherein

5       said retrieval condition buffer stores the  
retrieval condition until a predetermined time is  
reached or a predetermined capacity is filled.

14. The storage medium according to claim 11,  
10       wherein

          said retrieval simultaneously retrieves a  
plurality of retrieval patterns.

15. The storage medium according to claim 11,  
15       wherein

          said retrieval is performed in one of an Aho-  
Corasick (AC) method, an Expanded-Boyer-Moore (EBM)  
method, and a Shinohara-Arikawa (SA) method.

20 16. A pattern retrieval system in which a  
plurality of terminal devices and a pattern  
retrieval apparatus are connected through a network,  
wherein:

          each of said plurality of terminal devices  
25       comprises:

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said pattern retrieval

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storing data to be searched;
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determining whether or not a preceding retrieving

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generation unit generating, when the retrieving process determination unit determines that the preceding retrieving process is not being performed, a retrieval pattern variable table in which a  
5 retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other, if there are two or more identical retrieval patterns in the retrieval patterns stored in said retrieval condition buffer units, excluding  
10 the retrieval patterns other than one retrieval pattern;

a retrieval request expression variable table generation unit generating a retrieval request expression variable table in which the  
15 retrieval request expression indicating the retrieval pattern using the first variable and the second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the  
20 terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information  
25 stored in said retrieval condition buffer unit, and

a retrieval unit extracting a retrieval  
5 result matching the retrieval condition transmitted  
from each of the plurality of terminal devices by  
searching said retrieval target data storage unit  
according to the retrieval request expression  
variable table generated by said retrieval request  
10 expression variable table generation unit; and

each of said plurality of terminal devices  
15 further comprises

17. A pattern retrieval program executed by a  
pattern retrieval apparatus connected to a  
plurality of terminal devices through a network,  
comprising:

receiving a retrieval condition, transmitted  
25 from each of the plurality of terminal devices

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5      storing the received retrieval condition and
      the terminal device information in a retrieval
      condition buffer;

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when it is determined that the preceding  
retrieving process is not being performed,  
generating a retrieval pattern variable table in  
which a retrieval pattern and a first variable  
having the retrieval pattern as a value are  
associated with each other if there are two or more  
identical retrieval patterns in the retrieval  
patterns stored in the retrieval condition buffer,  
excluding retrieval patterns other than one  
retrieval pattern;

20           generating a retrieval request expression  
variable table in which the retrieval request  
expression indicating the retrieval pattern using  
the first variable and a second variable having the  
retrieval request expression as a value are  
25 associated, and the retrieval request expression

19. The pattern retrieval program according to  
25 claim 17, wherein

5    20.    The pattern retrieval program according to  
claim 17, wherein

10 21. The pattern retrieval program according to  
claim 17, wherein

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retrieval target data storage means for
20 storing data to be searched;

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retrieval condition reception means for receiving a retrieval condition, transmitted from each of the plurality of terminal devices together with the terminal device information for designation of each of the terminal devices,

retrieval condition buffer means for storing  
5 the retrieval condition and the terminal device  
information received by said retrieval condition  
reception means;

retrieval pattern variable table generation means for generating, when said retrieving process determination means determines that the preceding retrieving process is not being performed, a  
15 retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other, if there are two or more identical retrieval patterns in the retrieval patterns stored  
20 in said retrieval condition buffer means, excluding the retrieval patterns other than one retrieval pattern;

retrieval request expression variable table  
generation means for generating a retrieval request  
25 expression variable table in which the retrieval



request expression indicating the retrieval pattern using the first variable and the second variable having the retrieval request expression as a value are associated, and the retrieval request  
5 expression indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and  
10 the terminal device information stored in said retrieval condition buffer means, and the retrieval pattern variable table generated by said retrieval pattern variable table generation means;

retrieval means for extracting a retrieval  
15 result matching the retrieval condition transmitted from each of the plurality of terminal devices by searching said retrieval target data storage means according to the retrieval request expression variable table generated by said retrieval request  
20 expression variable table generation means; and

transmission means for transmitting the retrieval result extracted by said retrieval means to each of the plurality of terminal devices.

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